



1. Introduction/Overview

The Fort Lauderdale-Hollywood International Airport (FLL or the Airport) is a large-hub commercial service airport serving both domestic and international markets. The Airport plays a vital role in the regional transportation system for accommodating aviation and airline passenger travel, as well as commercial and cargo operations. FLL is owned by Broward County and is operated by the Broward County Aviation Department (BCAD) with oversight from the Broward County Board of County Commissioners (BOCC).

In October 2015, BCAD initiated this Master Plan Update (MPU) for FLL with funding from a combination of Federal Aviation Administration (FAA) and Florida Department of Transportation (FDOT) grants, along with airport revenues. The MPU represents a roadmap for implementing recommended airport improvements necessary to serve demand and enhance customer service during the next 20 years and beyond, in an incremental and financially affordable manner. The MPU will help define the next chapter for FLL as it continues to elevate the customer experience while fulfilling the air and multi-modal transportation needs of Broward County and the South Florida Region.

The MPU is one of the most important documents from an airport management and operations perspective because it guides future airport enhancements and new facility/infrastructure development. In addition to establishing the timing and need for future capital improvements, the aviation activity forecasts derived during the MPU can support other business decisions and functions. The preparation of operational and staffing plans, revenue and cost projections, and scheduling of maintenance activities are aided by the activity forecasts.

The accompanying Airport Layout Plan (ALP) and Capital Improvement Program (CIP) are essential for regulatory compliance and to support federal and state grant requests. While the CIP provides a phased approach for funding future capital expenditures, an FAA approved ALP is required to secure funding through the FAA's Airport Improvement Program (AIP) and to leverage Passenger Facility Charges (PFCs). Future airport development projects must also be depicted on the FAA approved ALP prior to initiating federal environmental processing through the National Environmental Policy Act (NEPA).

1.1 Changes Since Previous Master Plan

Since completion of the prior MPU for FLL in 2010, significant economic and aviation industry changes have impacted needs at the Airport. The primary changes that have influenced FLL's operational and capital needs since the last MPU include the following:

- Growth of low-cost carriers (LCCs) and ultra-low-cost Carriers (ULCCs) offering lower fares to passengers; stimulating travel decisions and providing new nonstop flights to secondary airports.
- Continued growth of the national, regional, and local economies and airline industry after the financial crisis in 2008.
- Consolidation of the domestic airline industry, with numerous mergers transpiring among both legacy and LCCs, including United Airlines-Continental Airlines, American Airlines-U.S. Airways, and Southwest-Air Tran Airways.
- Expansion of international service to Europe, Canada, and Latin America, resulting in an increase in connecting passengers.
- Shifting of the general aviation aircraft fleet mix, resulting in a decline in piston aircraft and robust growth in corporate jet activity.
- Introduction and growth of transportation network companies (TNCs), such as Uber and Lyft, are causing an ongoing shift in ground transportation demand characteristics and fluctuations in the volumes and sources of Airport revenues.
- Decommissioning of Runway 13-31 as part of the South Runway Redevelopment Program, which provides new opportunities for facility development and expansion opportunities.
- Rapid and ongoing advancement of smart technology resulting in increased expectations for customer experiences.

In addition to these events, FLL has experienced significant growth in passengers and airline activity since the previous MPU. Passenger enplanements have increased from 12.0 million in fiscal year (FY) 2014 to 17.7 million in FY 2018, an increase of 48 percent. Aircraft operations increased from 254,683 in FY 2014 to 329,874 in FY 2018, an increase of 30 percent.

1.2 Airport Baseline Conditions

FLL has undertaken a considerable number of projects and enhancements to the airfield and terminal since the completion of the 2010 MPU. For the purposes of this MPU, a baseline condition is established that is reflective of both existing conditions and on-going capital improvements. Some of these other larger-scale projects and enhancements include, but are not limited to, the following:

- **South Runway Expansion** – Reconstruction and extension of Runway 10R-28L, which converted it from a limited general aviation runway to a longer runway capable of serving commercial airline aircraft operations. In addition to widening and extending the South Runway, the project included the decommissioning of Runway 13-31 and the reconfiguration of the cross-field taxiway system.
- **Noise Mitigation Program** – This program provides adjacent residents living within the 65+ DNL noise contour the option to participate in either the Voluntary Residential Sound Insulation Program or the Voluntary Sales Assistance Program in order to mitigate the impact of noise from aircraft.

- **Terminal Modernization Programs** – The Terminal Modernization Program includes expansion of Terminals 1 and 4, as well as improvements throughout all 4 terminals including new and/or renovated concessions, restrooms, amenities, lobbies, federal inspection services (FIS) facilities, and passenger processing and circulation areas. Baggage systems and security-screening areas have also been renovated or consolidated as part of the program. As of December 2019, FLL has established 66 total contact gates in operation.
- **North Airfield Rehabilitation** – In June 2019, BCAD initiated a major rehabilitation of the North Airfield. This project includes the reconstruction of the center keel portion of Runway 10-28R (north runway) and an asphalt mill and overlay of the remaining portions. It also includes other various improvements, including geometry modifications to Taxiways A, B, and connectors to and from the north runway to support aircraft maneuvering based on current FAA design standards.

While the improvements undertaken during the past nine years have provided significant capacity and operational enhancements for FLL, additional capacity and airport improvements are still needed. The high growth patterns experienced at the Airport, coupled with changing patterns in traveler characteristics and modes of transportation to and from the Airport have created unique needs and accentuated the necessity for identifying further improvements for FLL.

1.3 Strategic Objectives and Goals

The strategic objectives and goals of the FLL MPU were created to ensure the future airport improvement recommendations proposed by the MPU will meet specific aviation and tenant needs. At the start of the MPU process, BCAD identified the following broad strategic objectives to guide the development of subsequent deliverables:

- Justify the proposed development plan within the study area through technical, economic, and environmental investigation of concepts and alternatives.
- Provide a modern graphic presentation of the future development of the Airport and anticipated land uses in the vicinity of the Airport.
- Establish a realistic schedule for the implementation of the development.
- Propose an achievable financial plan to support the implementation schedule.
- Provide the foundation for environmental evaluations that may be required prior to receiving project approval.
- Present a plan that adequately addresses the issues and satisfies local, state, and federal regulations.
- Document policies and future aeronautical demand to support Broward County best practices on spending, debt, land use controls, and other policies necessary to preserve the integrity of the Airport and its surroundings.
- Set the stage and establish the framework for a continuing airport planning process with supporting public coordination and participation element.

In order to align the strategic objectives of the MPU with the overall mission and vision of Broward County and BCAD, a Visioning Charette was conducted at the onset of the planning process. The goals and objectives for the MPU were discussed and subsequently refined to guide the planning process and to present these components during the various stakeholder engagement meetings. **Exhibit 1.3-1** presents the goals and objectives for the FLL MPU.

Exhibit 1.3-1: FLL Airport Master Plan Update Goals and Objectives

BALANCE

Airfield/terminal/landside/airspace

RESPOND

To immediate and near-term needs

POSITION

For future growth and new opportunities

ENHANCE

Customer experience and connectivity

OPTIMIZE

Land assets and recent investments

PRESERVE

FLL's Identity and Strengths

- Broward County's Asset
- Economic Engine
- Easy In, Easy Out
- Low Cost, High Efficiency

SOURCE: Broward County Aviation Department, 2017.

PREPARED BY: Ricondo & Associates, Inc., February 2018.

In addition to the BCAD goals and objectives discussed above, the following FAA requirements are incorporated into the MPU:

- Prepare an FAA-approved activity forecast to support BCAD's capital and financial investments for FLL.
- Obtain aerial imagery and photogrammetrical surveys in accordance with the FAA's electronic ALP (eALP) standards and upload through the Airports Geographic Information System (AGIS) web portal.
- Prepare a complete ALP drawing set, along with supporting documents in accordance with Standard Operating Procedure (SOP) 2.00, *Standard Procedures for FAA Review and Approval of ALPs*.
- Formulate a CIP that outlines project sequencing, justification, and funding eligibility for FAA and state grants.



1.4 Overview of Master Plan Process and Deliverables

The MPU provides an incremental development program to meet the aviation needs for a variety of users and stakeholders. BCAD will leverage this MPU to focus attention and investments on improvements or development necessary to serve the current and future needs of passengers and airlines, as well as to promote an efficient and dynamic operation over the next 20 years.

1.4.1 MASTER PLAN PROCESS

The FLL MPU was completed in accordance with federal and state guidelines found in FAA Advisory Circular 150/5070-6, *Airport Master Plans* and the FDOT *Guidebook for Airport Master Planning*. The MPU was tailored to FLL's specific needs. **Exhibit 1.4-1** illustrates the master plan process developed for FLL's MPU.

The MPU included the identification and analysis of improvements to the airfield, terminal/gate, landside, GA, cargo, and support facilities necessary to efficiently accommodate forecast growth in aviation activity. An environmental overview was developed to identify any potential environmental impacts associated with the proposed development. The CIP and financial analyses describe the timing of the proposed improvements, the anticipated development costs, proposed funding sources, and the overall affordability of the recommended program. The ALP provides a graphical depiction of BCAD's future vision and proposed development identified in the MPU.

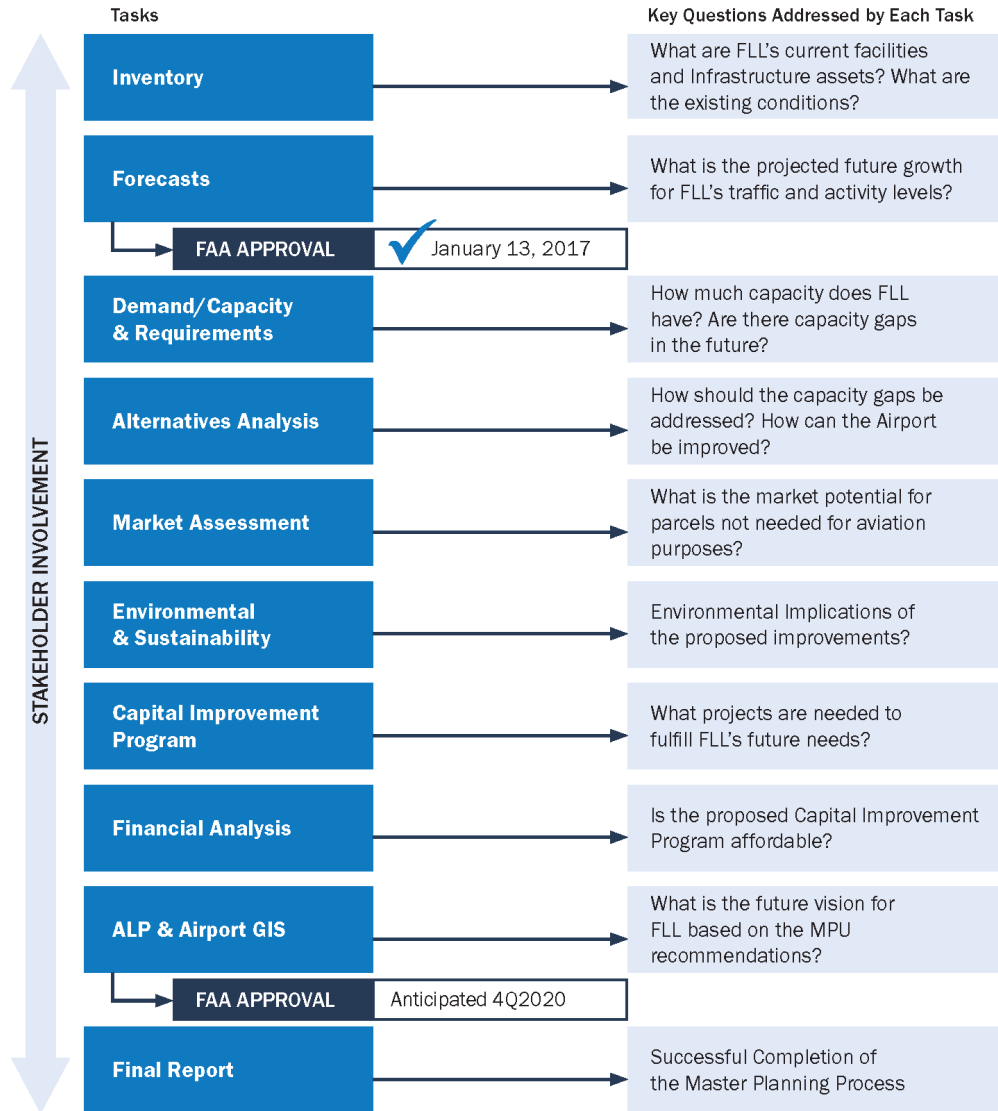
The FAA recommends airport master plans be updated when significant changes to an airport occur. In this situation, FLL has experienced a substantial increase in passenger activity, which warranted an update to the previous Master Plan from 2010. BCAD will continue to periodically update the plan to ensure its compatibility with aviation industry trends and local area changes.

1.4.2 MASTER PLAN DELIVERABLES

This MPU's documentation provides the sources of data collected, assumptions, technical analyses, findings, conclusions, and recommendations that form the basis for the preferred development program. The document is presented in the following sections and supporting appendices:

- Section 1: Introduction/Overview
- Section 2: Existing Condition Inventory
- Section 3: Aviation Activity Forecasts
- Section 4: Demand/Capacity Assessment and Facility Requirements
- Section 5: Alternatives Definition and Evaluation
- Section 6: Environmental Overview
- Section 7: Sustainability Initiatives
- Section 8: Capital Improvement Program and Financial Analysis
- Section 9: Airport Layout Plan Drawing Set

Exhibit 1.4-1: FLL Airport Master Plan Update Process



SOURCES: Federal Aviation Administration, Advisory Circular 150/5070-6B, *Airport Master Plans*, January 27, 2015; Florida Department of Transportation, *Guidebook for Airport Master Planning*, 2017.

PREPARED BY: Ricondo & Associates, Inc., May 2016.

- Appendix A: Stakeholder Engagement and Public Outreach Program
- Appendix B: Obstructions to the Part 77 Imaginary Surfaces
- Appendix C: Landside Analysis Terminal Access Roadways, Curbfronts, and Parking Short Term Improvements Volume I – Data Collection Report
- Appendix D: Landside Analysis Terminal Access Roadways, Curbfronts, and Parking Short Term Improvements Volume II – Demand/Capacity and Level of Service Report

- Appendix E: Federal Aviation Administration Review
- Appendix F: Terminal Facility Requirements Planning Criteria
- Appendix G: Southeast Regional Planning Model (SERPM) Methodology
- Appendix H: Preliminary Construction Phasing Plates
- Appendix I: Additional Nonterminal Area Development Alternatives
- Appendix J: Sustainability Initiatives: Summary of Baseline Benchmarking
- Appendix K: MPU Phase 1 Capital Improvement Program Project Request Forms
- Appendix L: MPU Phase 2 and 3 Projects
- Appendix M: Capital Improvement Program Layer Schedule
- Appendix N: Supplemental Financial Analysis as Requested by AAAC
- Appendix O: Airport Layout Plan (ALP) Review Checklist

1.5 Stakeholder Engagement Strategy and Public Outreach Program

The purpose of the stakeholder engagement strategy and public outreach program was to obtain meaningful input from key stakeholder groups or members of the public that may be impacted by, or have a vested interest in the outcomes of the FLL MPU. A copy of the stakeholder engagement and public outreach program document is included in **Appendix A**. The outreach program was designed to be inclusive and create an environment that promotes meaningful dialogue and opportunities for stakeholders and the public to actively participate in the master plan process. The public outreach program had the following key objectives:

- Engage with key stakeholders so that significant issues are identified, and participants can provide input and comments.
- Enhance decision-making and build business and public confidence in the process and recommendations.
- Disseminate accurate, timely, and concise information to assist stakeholders in reaching and expressing informed opinions about the Airport development options being considered by the BOCC.

The stakeholder engagement strategy and public outreach program consisted of the following elements:

- **Project Webpage:** A project webpage linked from FLL's airport website was active throughout the MPU process to provide notifications of upcoming meetings, past meeting details, electronic resources and presentations, master plan chapters, and contact information.
- **Master Plan Visioning Charrette:** As previously mentioned, a meeting took place at the onset of the MPU process with Airport and County leadership to establish goals and objectives for the planning process.
- **Advisory Committees:** Two advisory committees were established to present detailed master planning information, to engage committee members in discussions regarding analysis and conclusions, and to

gather feedback from committee members. Copies of the meeting minutes from each of the advisory committee meetings have been included in Appendix A.

- ***Policy Advisory Committee (PAC):*** The PAC consisted of BCAD senior management staff, as well as key members of other business and economic development agencies, governmental and community groups, and policy-makers. This committee provided input to the planning team on macro-level policy issues, considerations, near-term and long-range aviation goals of the County, and other factors that shape or affect the role of each airport in the County, as well as facility or operational needs that will affect the diversity and breadth of analyses undertaken in the master planning process. It also provided valuable input regarding community issues and concerns relating to the Airport and the relationship to the overall community and nearby municipalities.
- ***Technical Advisory Committee (TAC):*** The TAC focused on review of the MPU analyses and the various related tasks from a technical perspective. This committee included BCAD staff from various divisions, as well as representatives from the airlines, the FDOT, the Metropolitan Planning Organization (MPO), City and County Community and Transportation Planning Agencies, the FAA, the FLL Air Traffic Control Tower, and other key airport users. This committee reviewed and commented on the technical and operational analyses and recommendations developed throughout the master planning process.
- **Airline Airport Affairs Committee (AAAC):** The MPU team collaborated with airline stakeholders at several AAAC meetings to discuss current and future needs and to obtain feedback on master planning analyses and alternatives development.
- **Broward County BOCC:** Presentations and workshops were used to brief the BOCC on the status of the MPU and to gather feedback given at key milestones. BOCC approval of the MPU was required for submission to the FAA and for final acceptance of the MPU.
- **Public Workshops:** Two public open houses were held to outline the master planning process, share preliminary analysis and findings, and present draft recommendations. The workshops provided an opportunity for input and feedback, as well as to facilitate interactions between BCAD, the public, and the MPU team. Copies of the workshop sign-in sheets and comment cards are included in Appendix A.
- **FAA Coordination Meetings:** Four meetings were held with the FAA to provide updates on the MPU at key milestones and to gain their feedback on proposed future development.
- **FDOT Coordination Meetings:** Six presentations were made to the FDOT during the MPU to illustrate the proposed future development and to gain the FDOT's insight on the relationship between FLL and the state transportation system.
- **Broward MPO Meetings:** The Broward MPO is tasked with developing a long-range transportation plan for Broward County. Two presentations were made to the MPO to ensure FLL's future proposed development aligns with or enhances Broward County's future transportation plan.

Exhibit 1.5-1 depicts the MPU stakeholder engagement and public outreach briefing dates.

Exhibit 1.5-1: FLL Airport Master Plan Update Summary of Key Stakeholder Meetings

Regular	<ul style="list-style-type: none"> • Weekly: Project Coordination with BCAD Development and Planning Staff • Bi-Weekly: Executive Director Briefings
2016 <ul style="list-style-type: none"> • Visioning • AGIS • Market Assessment • Inventory • Preliminary Forecasts • Preliminary Demand Capacity/ Facility Requirements 	<ul style="list-style-type: none"> • January, February, August, September: Airline Briefings • May: Broward County Staff, FAA Airports District Office (ADO) Briefing • September: Policy Advisory Committee (PAC) & Technical Advisory Committee (TAC) – Briefing #1, • August, September, November: Metropolitan Planning Organization (MPO) • October: Airport Airline Affairs Committee Briefing #1
2017 <ul style="list-style-type: none"> • Forecasts Approved • Refined Demand Capacity/ Facility Requirements • Preliminary Alternatives 	<ul style="list-style-type: none"> • June, November: Florida Department of Transportation (FDOT) & Metropolitan Planning Organization (MPO) Briefings and Coordination Meetings • July: PAC & TAC – Briefing #2 • October: Federal Aviation Administration (FAA) Airports District Office (ADO) Briefing
2018 <ul style="list-style-type: none"> • Refined Alternatives • Preliminary CIP and Financial Analysis • Environmental Overview • Sustainability Initiatives • Preliminary ALP Development 	<ul style="list-style-type: none"> • January: FAA & FDOT Briefing, Airport Airline Affairs Committee Briefing #2 • February: FLL Public Open House Workshop #1 • May: Airport Airline Affairs Committee Briefing #3, BOCC Briefing • June: PAC & TAC – Briefing #3
2019 <ul style="list-style-type: none"> • Refined CIP and Financial Analysis • Implementation and Sequencing • Initial ALP Submission 	<ul style="list-style-type: none"> • March: BCAD Development Workshop, BCAD Divisions Workshop, BCAD Executive Workshop • April: Airport Airline Affairs Committee Briefing #4, Florida Department of Transportation & Metropolitan Planning Organization Briefing, County Administrator Briefing • June: BOCC Briefing • July: FLL Public Open House Workshop #2, PAC & TAC – Briefing #4

SOURCE: Ricondo & Associates, Inc., July 2017.

PREPARED BY: Ricondo & Associates, Inc., July 2017.



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